THE ASTROPHYSICAL JOURNAL CONTENTS OF VOLUME 374, PART 1

1991 JUNE 10, Number 1

	Page	Fiche
VOIDS IN A NEUTRINO-DOMINATED UNIVERSE Ning Zeng & Simon D. M. White	1	98-B1
THE HYDRODYNAMICS OF RELICT COSMOLOGICAL H π REGIONS AND THE FORMATION OF OBJECTS AT HIGH REDSHIFT Piero Madau & Avery Meiksin	Т 6	98-B7
BACKGROUND CORRELATION FUNCTIONS FROM GALAXY ROTATION CURVES Stefano Borgani, Silvio A. Bonometto, Massimo Persic, & Paolo Salucci	20	98-C7
EVOLUTION OF VELOCITY AND DENSITY FIELDS AROUND CLUSTERS OF GALAXIES Per B. Lilje & Ofer Lahav	29	98-D3
UNSATURATED COMPTONIZATION OF ISOTROPIC PHOTON SPECTRA BY RELATIVISTIC ELECTRONS Abraham Loeb, Christopher F. McKee, & Ofer Lahav	44	98-E5
SYNCHROTRON EMISSION FROM SHOCKED RELATIVISTIC JETS. III. MODELS FOR THE CENTIMETER WAVE BAND QUIESCENT AND BURST EMISSION FROM 3C 279 AND OT 081 P. A. Hughes, H. D. Aller, & M. F. Aller	57	98-F5
NEW OBSERVATIONS OF THE GAS CLOUD ASSOCIATED WITH THE QUASAR-GALAXY PAIR 3C 232/NGC 30 John T. Stocke, James Case, Megan Donahue, J. Michael Shull, & Theodore P. Snow	067 72	98-G7
GRAVITATIONAL MICROLENSING OF HIGH-REDSHIFT SUPERNOVAE BY COMPACT OBJECTS Kevin P. Rauch	83	99-A11
DEEP SPECTROSCOPY UNDER HIGH SPATIAL RESOLUTION OF THE HIGH-REDSHIFT RADIO SOURCE 3CI THE MONSTER ELUCIDATED F. Hammer, O. Le Fèvre, & D. Proust	R 368: 91	99-B7
H I DEFICIENCY IN CLUSTER SPIRAL GALAXIES: DEPENDENCE ON GALAXY SIZE Monica Valluri & Chanda J. Jog	103	99-C7
A CATALOG OF SPIN ORIENTATION OF SOUTHERN GALAXIES Masanori Iye & Hajime Sugai	112	99-D3
THE PROPERTIES OF X-RAY-SELECTED ACTIVE GALACTIC NUCLEI. I. LUMINOSITY FUNCTION, COSMOI EVOLUTION, AND CONTRIBUTION TO THE DIFFUSE X-RAY BACKGROUND Tommaso Maccacaro, Roberto Della Ceca, Isabella M. Gioia, Simon L. Morris, John T. Stocke, & Anna Wolter	LOGICAL 117	99-D11
COSMIC-RAY DISTRIBUTION AND THE DYNAMIC BALANCE IN THE LARGE MAGELLANIC CLOUD Carl E. Fichtel, Mehmet E. Özel, Robert G. Stone, & P. Sreekumar	134	99-F7
THE CHROMOSPHERIC ACTIVITY OF LOW-MASS STARS IN THE HYADES John R. Stauffer, Mark S. Giampapa, William Herbst, James M. Vincent, Lee W. Hartmann, & Robert A. Stern	142	99-G1
VARIABILITY OF INTERSTELLAR HYDROXYL MASERS Andrew W. Clegg & James M. Cordes	150	99-G11
PROBING THE CORE OF CEPHEUS A: MILLIMETER AND SUBMILLIMETER OBSERVATIONS G. H. Moriarty-Schieven, R. L. Snell, & V. A. Hughes	169	100-B3
OBSERVATIONS OF HCO* IN B335 Tatsuhiko I. Hasegawa, C. Rogers, & Saeko Suzuki Hayashi	177	100-C1
CHANGES IN THE OPTICAL REMNANT OF KEPLER'S SUPERNOVA DURING THE PERIOD 1942–1989 Rino Bandiera & Sidney van den Bergh	186	100-C1

CONTENTS

	ruge	FILME
FAR-ULTRAVIOLET MAPPING OF THE CYGNUS LOOP WITH THE VOYAGER 2 ULTRAVIOLET SPECTROMETER William P. Blair, Knox S. Long, Olaf Vancura, & J. B. Holberg	202	100-E5
A NEW LOOK AT THE "JET" IN THE CTB 37A/B SUPERNOVA REMNANT COMPLEX Namir E. Kassim, Stefi A. Baum, & Kurt W. Weiler	212	100-F9
HEAO 1 A-2 LOW-ENERGY DETECTOR X-RAY SPECTRA OF THE LUPUS LOOP AND SN 1006 D. A. Leahy, J. Nousek, & A. J. S. Hamilton	218	100-G1
SPATIAL STUDIES OF PLANETARY NEBULAE WITH IRAS G. W. Hawkins & B. Zuckerman	227	100-G11
POST-NEWTONIAN EFFECTS ON THE MODES OF ROTATING STARS Curt Cutler	248	101-C1
ON THE SENSITIVITY OF THE N-BODY PROBLEM TO SMALL CHANGES IN INITIAL CONDITIONS Henry E. Kandrup & Haywood Smith, Jr.	255	101-C9
MODEL LIGHT CURVES OF LINEAR TYPE II SUPERNOVAE Douglas A. Swartz, J. Craig Wheeler, & Robert P. Harkness	266	101-D7
LIMITS ON THE SPACE DENSITY OF DOUBLE DEGENERATES AS TYPE Ia SUPERNOVA PROGENITORS Diana Foss, Richard A. Wade, & Richard F. Green	281	101-E9
BLUE LOOPS DURING CORE HELIUM BURNING AS THE CONSEQUENCE OF MODERATE CONVECTIVE ENVELOPE OVERSHOOTING IN STARS OF INTERMEDIATE TO HIGH MASS Richard B. Stothers & Chao-wen Chin	288	101-F3
CHANGES IN THE 11 MINUTE PERIOD OF 4U 1820 – 30 J. Tam, E. Morgan, W. H. G. Lewin, W. Penninx, M. van der Klis, J. van Paradijs, K. Makishima, H. Inoue, T. Dotani, & K. Mitsuda	291	101-F6
THE PULSE-TIMING AND EMISSION-LINE ORBITS OF THE WHITE DWARF IN THE CATACLYSMIC VARIABLE AE AQUARII Edward L. Robinson, Allen W. Shafter, & S. Balachandran	298	101-G1
A LIGHT SYNTHESIS STUDY OF W URSAE MAJORIS Albert P. Linnell	307	102-A1
BROAD-BAND LINEAR POLARIZATION IN COOL STARS. I. MODELS AND SPATIAL EFFECTS FOR MAGNETIC AND SCATTERING REGIONS Juhani Huovelin & Steven H. Saar	319	102-B1
THE INFRARED AND OPTICAL PULSATIONS OF G29-38 Joseph Patterson, B. Zuckerman, E. E. Becklin, D. J. Tholen, & T. Hawarden	330	102-C1
HIGH-SPEED PHOTOMETRY OF V404 CYGNI IN OUTBURST Eric Gotthelf, Joseph Patterson, & Richard J. Stover	340	102-C11
DETERMINATION OF CONFIDENCE LIMITS FOR EXPERIMENTS WITH LOW NUMBERS OF COUNTS Ralph P. Kraft, David N. Burrows, & John A. Nousek	344	102-D1
ENERGY SPECTRA AND COMPOSITION OF PRIMARY COSMIC RAYS Dietrich Müller, Simon P. Swordy, Peter Meyer, Jacques L'Heureux, & John M. Grunsfeld	356	102-E1
THERMAL AND MECHANICAL DAMPING OF SOLAR p-MODES Peter Goldreich & Pawan Kumar	366	102-F1
CONSEQUENCES OF STRONG PITCH-ANGLE DIFFUSION OF PARTICLES IN SOLAR FLARES P. A. Bespalov, V. V. Zaitsev, & A. V. Stepanov	369	102-F5
CORONAL MAGNETIC STRUCTURES OBSERVING CAMPAIGN. I. SIMULTANEOUS MICROWAVE AND SOFT X-RAY OBSERVATIONS OF ACTIVE REGIONS AT THE SOLAR LIMB N. Nitta, S. M. White, M. R. Kundu, N. Gopalswamy, G. D. Holman, J. W. Brosius, J. T. Schmelz, J. L. R. Saba, & K. T. Strong	374	102-F11
POLAR FACULAE: 1906–1990 N. R. Sheeley, Jr.	386	102-G1
CALCULATIONS CONCERNING THE REACTION C + H ₃ → CH ⁺ + H ₂ D. Talbi, D. J. DeFrees, D. A. Egolf, & Eric Herbst	390	103-A1

CONTENTS

1991 JUNE 20, Number 2

ALDERDOCITION AND INVOLVEN PERFNESS PERFORM IN A DRIVE OF CONTROL OF A DATE OF CONTROL O	Page	Fiche
SUPERPOSITION AND INCOMPLETENESS EFFECTS IN ABELL'S STATISTICAL SAMPLE OF CLUSTERS Mitchell F. Struble & Herbert J. Rood	395	104-B5
INFRARED EMISSION IN PAIRED GALAXIES. II. LUMINOSITY FUNCTIONS AND FAR-INFRARED PROPERTI Cong Xu & Jack W. Sulentic	ES 407	104-C5
THE COMPLETE SAMPLE OF 1 JANSKY BL LACERTAE OBJECTS. I. SUMMARY PROPERTIES M. Stickel, P. Padovani, C. M. Urry, J. W. Fried, & H. Kühr	431	104-E1
THE CfA EINSTEIN OBSERVATORY EXTENDED DEEP X-RAY SURVEY F. A. Primini, S. S. Murray, J. Huchra, R. Schild, R. Burg, & R. Giacconi	440	104-E12
TIME EVOLUTION OF INTERSTELLAR DUST AND FAR-INFRARED LUMINOSITY OF DISK GALAXIES $\textit{Boqi Wang}$	456	104-G1
INTEGRATED FAR-INFRARED BACKGROUND FROM GALAXIES Boqi Wang	465	104-G12
THE DETECTION OF X-RAYS FROM THE HOT INTERSTELLAR MEDIUM OF THE LARGE MAGELLANIC CLO Q. Wang, T. Hamilton, D. J. Helfand, & X. Wu	OUD 475	105-A10
BROAD Na D EMISSION IN QSOs AND THE PROFILE OF He 1 λ5876 Keith L. Thompson	496	105-C7
EXTRAPLANAR IONIZED GAS AND KINEMATICS IN THE EDGE-ON GALAXY NGC 891 Jean W. Keppel, Ralf-Jürgen Dettmar, John S. Gallagher III, & Morton S. Roberts	507	105-D6
INFRARED FLUORESCENCE OF H2 IN NGC 6420: A STARBURST ORIGIN FOR THE H2 LUMINOSITY Masuo Tanaka, Tetsuo Hasegawa, & Ian Gatley	516	105-E9
LARGE-SCALE [C II] 158 MICRON EMISSION FROM THE GALAXY Hiroshi Shibai, Haruyuki Okuda, Takao Nakagawa, Hideo Matsuhara, Toshinori Maihara, Kohei Mizutani, Yukiyasu Kobayashi, Norihisa Hiromoto, Tetsuo Nishimura, & Frank J. Low	522	105-F1
INFRARED IMAGES OF M17 Charles J. Lada, D. L. DePoy, K. M. Merrill, & Ian Gatley	533	105-G1
A SPECTROSCOPIC STUDY OF THE DR 21 OUTFLOW SOURCE. III. THE CO LINE EMISSION R. P. Garden, M. Hayashi, I. Gatley, T. Hasegawa, & N. Kaifu	540	105-G11
OBSERVATIONS OF [Si II] (35 MICRON) AND [S I] (25 MICRON) IN ORION: EVIDENCE FOR A WIND SHOCK NEAR IRc2 Michael R. Haas, David Hollenbach, & Edwin F. Erickson	555	106-B1
AXISYMMETRIC MODEL OF THE IONIZED GAS IN THE ORION NEBULA R. H. Rubin, J. P. Simpson, M. R. Hass, & E. F. Erickson	564	106-B12
PHYSICAL CONDITIONS IN THE ORION NEBULA AND AN ASSESSMENT OF ITS HELIUM ABUNDANCE Jack A. Baldwin, Gary J. Ferland, P. G. Martin, Michael R. Corbin, Stephen A. Cota, Bradley M. Peterson, & Arne St.	580 lettebak	106-D1
THE COLLAPSE OF CYLINDRICAL ISOTHERMAL AND POLYTROPIC CLOUDS WITH ROTATION Ian Bonnell & Pierre Bastien	610	106-F5
THE COMMON ENVELOPE PHASE IN CLASSICAL NOVAE: ONE-DIMENSIONAL MODELS Anurag Shankar, Mario Livio, & James W. Truran	623	106-G6
SHELL HELIUM BURNING IN LOW-MASS STARS. I. MODELS IN THERMAL EQUILIBRIUM Masayuki Y. Fujimoto & Icko Iben, Jr.	631	107-A1
THERMONUCLEAR REACTIONS IN DENSE STELLAR MATTER: ELECTRON SCREENING REVISITED Setsuo Ichimaru & Shuji Ogata	647	107-B5
EQUATION OF STATE IN A STRONG MAGNETIC FIELD: FINITE TEMPERATURE AND GRADIENT CORRECT Andrew M. Abrahams & Stuart L. Shapiro	TIONS 652	107-B12
A THEORY OF GAMMA-RAY BURSTS BASED ON RESONANT COMPTON SCATTERING Peter Vitello & Charles D. Dermer	668	107-D1
CYCLOTRON RESONANT SCATTERING AND ABSORPTION Alice K. Harding & Joseph K. Daugherty	687	107-E8

CONTENTS

HYDRODYNAMIC PULSATION MODELS OF YELLOW SUPERGIANT STARS IN THE POST-ASYMPTOTIC GIANT BRANCH Toshiki Aikawa	700	107-F13
INEFFICIENT ACCRETION BY THE DA2 WHITE DWARF IN V471 TAURI D. J. Mullan, H. L. Shipman, E. M. Sion, & J. MacDonald	707	107-G8
THE EFFECTS OF X-RAY ILLUMINATION ON ACCRETION DISK INTERIORS Yuan-Kuen Ko & Timothy R. Kaliman	721	108-A10
FLUX-LIMITED DIFFUSION IN A SCATTERING MEDIUM Fulvio Melia & Gregory J. Zylstra	732	108-B9
A JET MODEL FOR A VERY HIGH STATE OF GX 339-4 Sigenori Miyamoto & Shunji Kitamoto	741	108-C6
X-RAY TO INFRARED OBSERVATIONS OF THE AM HERCULIS SYSTEM E1405-451 (V834 CENTAURI) R. M. Sambruna, L. Chiappetti, A. Treves, J. M. Bonnet-Bidaud, P. Bouchet, L. Maraschi, C. Motch, & M. Mouchet	744	108-C10
IONIZATION STATES OF THE ANOMALOUS COSMIC RAYS R. K. Singh, Banashree Mitra, N. Durgaprasad, S. Biswas, M. N. Vahia, J. S. Yadav, A. Dutta, & J. N. Goswami	753	108-D7
THE STRETCHING OF MAGNETIC FLUX TUBES IN THE CONVECTIVE OVERSHOOT REGION George H. Fisher, Alexander N. McClymont, & Dean-Yi Chou	766	108-E10
TEMPERATURE-DEPENDENT SATURATION OF HYDROGEN LINES IN SOLAR FLARES K. G. Gayley	773	108-F5
ERRATUM		
Excitation of Millimeter and Submillimeter Water Masers David A. Neufeld & Gary J. Melnick	784	108-G4
ABSTRACTS OF THE ASTROPHYSICAL JOURNAL SUPPLEMENT SERIES, 1991 JULY		
Origins of the 12-200 Micron Flux in NGC 6946: Starlight and Continuum Dust Emission from an Sc Galaxy G. Engargiola	786	108-G8
THE EINSTEIN OBSERVATORY EXTENDED MEDIUM-SENSITIVITY SURVEY. II. THE OPTICAL IDENTIFICATIONS John T. Stocke, Simon L. Morris, I. M. Gioia, T. Maccacaro, R. Schild, A. Wolter, Thomas A. Fleming, J. Patrick Henry	786	108-G8
Collisional Excitation of Formaldehyde in "Hot" Interstellar Molecular Regions Sheldon Green	787	108-G9
Theoretical H II Region Models: The Effects of Stellar Atmosphere Models I. N. Evans	787	108-G9
The Evolution of He-burning Stars: Horizontal and Asymptotic Branches in Galactic Globulars V. Castellani, A. Chieffi, & L. Pulone	788	108-G10
Photoelectric UBV Photometry of Stars Selected in the HK Objective-Prism Survey George W. Preston, Stephen A. Shectman, & Timothy C. Beers	788	108-G1
UBV PHOTOMETRY OF OB* STARS IN THE SOUTHERN MILKY WAY J. S. Drilling	788	108-G1
AUTHOR AND SUBJECT INDEXES TO VOLUMES 372-374, PARTS 1 AND 2	i	109-B1

